

RECEIVED  
CENTRAL FAX CENTER

FEB 03 2009

U.S. Serial No. 10/534,072  
Reply to Action of: August 18, 2008  
Family Number: P2002J114

Page 2

**AMENDMENTS TO THE CLAIMS**

This listing of claims will replace the listing of claims in the application.

1. (currently amended) A process for the manufacture of a catalyst comprising a catalytically active metal dispersed on a support, which process comprises:

- a) preparing a support having an organic metal complex of the catalytically active metal deposited thereon by treating a porous support with a compound or salt of the metal and a nitrogen-containing organic compound selected from (i) amino acids and (ii) compounds containing both an amino group and an alcohol group, to form the organic metal complex on the support;
- b) partially decomposing the organic metal complex on the support to the extent that the partially decomposed product (I) retains between 10 and 95% by weight of the dry weight attributed to the organic metal complex prior to partial decomposition, and (II) exhibits one or more infra-red absorption bands between 2100-2200  $\text{cm}^{-1}$  that are not present in the organic metal complex before partial decomposition; and
- c) converting the partially decomposed organic metal complex into catalytically active metal.

2. (original) The process as claimed in claim 1 wherein the conversion to catalytically active metal is achieved by treatment of the support comprising the partially decomposed organic metal complex with a reductant.

U.S. Serial No. 10/534,072  
Reply to Action of: August 18, 2008  
Family Number: P2002J114

Page 3

3. (previously presented) The process as claimed in claim 2 wherein the reductant is selected from a source of hydrogen, a source of CO, and mixtures thereof.

4. (previously presented) The process as claimed in claim 2 wherein the source of reductant is provided in-situ in a catalysed process.

5. (previously presented) The process as claimed in claim 2 wherein the source of reductant is provided in a catalyst regeneration process.

6. (previously presented) The process as claimed in claim 2 wherein the source of reductant is provided in a catalyst regeneration process or catalyst recycle process associated with a catalysed process.

7. (previously presented) The process as claimed in claim 1 wherein the nitrogen-containing organic compound has been incorporated into or within the support during its manufacture or synthesis.

8. (previously presented) The process as claimed in claim 1 wherein the nitrogen-containing organic compound is an aliphatic amine containing one or more hydroxyl groups.

9. (original) The process as claimed in claim 8 wherein the amine comprises an hydroxyalkyl group.

10. (original) The process as claimed in claim 9 wherein the hydroxyalkyl group is C<sub>1</sub>-C<sub>50</sub>-hydroxyalkyl.

11. (original) The process as claimed in claim 10 wherein the hydroxyalkyl group is C<sub>1</sub>-C<sub>8</sub>-hydroxyalkyl.

U.S. Serial No. 10/534,072  
Reply to Action of: August 18, 2008  
Family Number: P2002J114

Page 4

12. (original) The process as claimed in claim 11 wherein the hydroxyalkyl group is C<sub>1</sub>-C<sub>4</sub>-hydroxyalkyl.

13. (original) The process as claimed in claim 12 wherein the hydroxyalkyl group is selected from: hydroxymethyl, 1-hydroxyethyl, 2-hydroxyethyl, 1-hydroxy-n-propyl, 2-hydroxy-n-propyl, 3-hydroxy-n-propyl and 1-hydroxy-methyl-ethyl.

14. (original) The process as claimed in claim 13 wherein the nitrogen-containing organic compound comprises a mono-, di-, or tri-, substituted aliphatic hydroxyalkylamine.

15. (original) The process as claimed in claim 14 wherein the hydroxyalkylamine comprises one or more of: methanolamine, di-methanolamine, tri-methanolamine, ethanolamine, di-ethanolamine, tri-ethanolamine, butanolamine, di-butanolamine, tri-butanolamine, propanolamine, di-propanolamine, dimethylethanolamine, di-isopropylethanolamine, methyldiethanolamine, dimethylamino-2-propanol and tri-propanolamine.

16. (previously presented) The process of claim 1 wherein the amino acid is L-arginine.

17. (previously presented) The process as claimed in claim 1 wherein the amino acid is selected from all isomers of the following: alanine, arginine, asparagines, aspartic acid, cysteine, cystine, 3,5-dibromotyrosine, 3,5-diiodotyrosine, glutamic acid, glutamine, glycine, histidine, hydroxylysine, hydroxyproline, isoleucine, leucine, lysine, methionine, phenylalanine, proline, serine, threonine, thyroxine, tryptophane, tyrosine and valine.

U.S. Serial No. 10/534,072  
Reply to Action of: August 18, 2008  
Family Number: P2002J114

Page 5

18. (cancelled)

19. (currently amended) The process ~~as claimed in of claim 18~~ 1, wherein the organic metal complex is partially decomposed by calcination or pyrolysis, wherein the calcination temperature is less than the temperature, as determined by TGA in air, at which total weight loss of the organic complex occurs or the pyrolysis temperature is less than the temperature, as determined by TGA in an inert atmosphere of hydrogen, at which total weight loss of the organic complex occurs.

20. (original) The process as claimed in claim 19 wherein the calcination or pyrolysis temperature is between 200°C and the temperature at which total weight loss of the organic complex occurs.

21. (currently amended) The process as claimed in claim ~~18~~19 wherein the partial decomposition is performed by introduction of the support comprising the organic metal complex into a process selected from the group consisting of a catalysed process, a catalyst regeneration process, and a catalyst recycle process.

22. (previously presented) The process as claimed in claim 1 wherein, in the catalyst formed by the process, the total metal dispersion is 45% or more and the metal dispersion relating to a strongly chemisorbed component of the total metal dispersion is 20% or greater.

23. (previously presented) The process as claimed in claim 1 wherein the product of step (b) exhibits dispersion values relating to the strong dispersion component of less than 1%.

U.S. Serial No. 10/534,072  
Reply to Action of: August 18, 2008  
Family Number: P2002J114

Page 6

24. (previously presented) The process as claimed in claim 23 wherein the dispersion is less than 0.5%.

25. (previously presented) The process as claimed in claim 1 wherein step (b) is performed to the extent that the partially decomposed product retains between 20 and 75 % by weight of the dry weight attributed to the organic complex prior to partial decomposition.

26. (previously presented) The process as claimed in claim 1 wherein the catalyst support comprises silica.

27. (original) The process as claimed in claim 26 wherein the silica is amorphous.

28. (previously presented) The process as claimed in claim 1 wherein the support comprises a material selected from the group consisting of an ordered mesoporous material, a macroporous material, and a combination thereof.

29. (previously presented) The process as claimed in claim 1 wherein the support comprises a material designated as M41S.

30. (original) The process as claimed in claim 29 wherein the support material is MCM-41.

31. (previously presented) The process as claimed in claim 1 wherein the support comprises alumina.

32. (previously presented) The process as claimed in claim 1 wherein the support comprises a material selected from the group consisting of rutile titanium dioxide, anatase titanium dioxide and mixtures thereof.

U.S. Serial No. 10/534,072  
Reply to Action of: August 18, 2008  
Family Number: P2002J114

Page 7

33. (original) The process as claimed in claim 32 wherein the support further comprises zirconium dioxide.

34. (previously presented) The process as claimed in claim 1 wherein the salt or compound of one or more catalytically active metals is a salt or compound of one or more metals selected from the group consisting of: Group 1 (Group IA); Group 2 (Group IIA); Group 3 (Group IIIA, IIIB); Group 4 (Group IVA, IVB); Group 5 (Group VA, VB); Group 6 (Group VIA, VIB); Group 7 (Group VIIA, VIIB); Groups 8, 9, and 10 (Group VIII, VIIIA); Group 11 (Group IB); Group 12 (Group IIB); Group 13 (Group IIIA, IIIB); and Group 14 (Group IVA, IVB).

35. (previously presented) The process as claimed in claim 34 wherein the salt or compound of one or more catalytically active metals is a salt or compound of one or more metals selected from the group consisting of copper, platinum, rhodium, palladium, cobalt, iron, nickel, rhenium, ruthenium and mixtures of two or more thereof as active metal.

36. (previously presented) The process according to claim 1 wherein the compound or salt of the catalytically active metal is selected from a nitrate and nitrosyl nitrate.

37. (previously presented) A process for the production of C<sub>5+</sub> liquid hydrocarbons from a hydrogen and carbon monoxide synthesis gas by contact of the said gas at reaction conditions with a catalyst as manufactured by the process as claimed in claim 1.

U.S. Serial No. 10/534,072  
Reply to Action of: August 18, 2008  
Family Number: P2002J114

Page 8

38. (previously presented) A method for the removal of sulfur from a mixture comprising one or more organic compounds and one or more sulfur containing compounds, in which method the mixture is contacted with one or more materials comprising active metal dispersed on an inorganic support under such conditions that sulfur is adsorbed onto the material comprising active metal dispersed on an inorganic support and wherein the material comprising active metal deposited on a support is a catalyst as manufactured by the process as claimed in claim 1.